

# ECONOMIC ASSESSMENT OF WASHINGTON INITIATIVE 522

PREPARED BY  
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EMORY UNIVERSITY SCHOOL OF LAW



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# EXECUTIVE SUMMARY

This economic assessment addresses the question of three potential costs associated with Initiative 522:

1. **Relabeling expenses associated with the redesign of package labels and display of placards in grocery stores.** *My analysis indicates no change in consumer food prices as a result of these relabeling expenses.*
2. **Costs resulting from possible litigation in the State of Washington.** A miniscule increase in litigation is predicted to result from Initiative 522.
3. **Costs resulting from new regulations to be adopted by the Washington Department of Health.** The increase in these administrative costs will be trivial.

## Food Producers Will Not Raise Prices to Offset the Expense of Relabeling

**Consumers will see no increase in prices as a result of the relabeling required by Initiative 522.** Countless empirical studies and reports by government agencies establish the numerous reasons why food producers do not raise prices to offset the trifling expense of relabeling:

- For many food producers, label changes required by Initiative 522 will be incorporated into regularly scheduled label redesigns.
- Price adjustment expenses will deter food producers from raising prices to offset relabeling under Initiative 522.
- As relabeling costs under Initiative 522 are a one-time expense rather than a permanent cost increase, sellers will not be willing to incur the expenses of re-pricing.
- The fear of losing customers in the competitive food industry is an important deterrent to changing prices.

Nevertheless, I compute an **improbable, worst-case scenario**: the consumer price increases that would result if *all* producers pass on, to consumers, the *entirety* of the minor, one-time expense of redesigning labels and installing store placards:

- Prices for packaged products would increase by, on average, 0.14% **for one year only**, to offset the entire one-time expense of redesigning labels.
- Produce prices would increase by 0.1%, **for one year only**, to account for the new expense of placards disclosing genetic engineering.
- In summary, the **improbable, worst-case scenario** in Washington is that price increases as a result of Initiative 522—**across all products, for one year only**—amount to a mere \$2.20 per person.

## Trivial Costs Resulting from Increased Litigation

If there is an increase in litigation associated with Initiative 522, the state could incur trivial costs to process and hear the additional cases. In addition, the attorney general and local district attorneys may also incur insignificant costs as they review and respond to allegations of violations and notices of private action.

- The annual costs to the State of Washington for processing and hearing additional cases under Initiative 522 are expected to be less than \$179,500 annually.
- In per capita terms, an additional \$179,500 translates into a cost of \$0.026, or **approximately 3 cents**, for each person living in the State of Washington.

## Negligible Administrative Costs

Initiative 522 may also impose administrative costs on the State of Washington as the Department of Health adopts regulations necessary to implement certain provisions in the measure.

- These additional annual administrative costs are projected to be approximately \$741,000.
- Costs of \$741,000 represent only 0.156% of the Department of Health Budget and 0.0045% of the entire state budget.
- In per capita terms, an additional \$741,000 translates into a cost of \$0.104, or **approximately 10 cents**, for each person living in the State of Washington.



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# ECONOMIC ASSESSMENT OF WASHINGTON INITIATIVE 522

## I. Food Producers Will Not Raise Prices to Offset the Expense of Relabeling

Initiative 522 requires producers of certain foods offered for retail sale in Washington to alter their package labeling or display placards to disclose genetic engineering:

*Sec. 3. (1) Beginning July 1, 2015, any food offered for retail sale in Washington is misbranded if it is, or may have been, entirely or partly produced with genetic engineering and that fact is not disclosed as follows:*

*(a) In the case of a raw agricultural commodity, on the package offered for retail sale, with the words "genetically engineered" stated clearly and conspicuously on the front of the package of such a commodity, or in the case of such a commodity that is not separately packaged or labeled, on a label appearing on the retail store shelf or bin where such a commodity is displayed for sale;*

*(b) In the case of any processed food, on the front of the package of such food produced by a manufacturer, with the words "partially produced with genetic engineering" or "may be partially produced with genetic engineering" stated clearly and conspicuously.<sup>1</sup>*

Thus, Initiative 522 will cause some food producers to incur negligible expenses to redesign package labels and display placards in grocery stores. However, food producers will not raise prices to offset the expense of relabeling for 2 reasons: 1) food producers routinely redesign and reprint labels. So, the wording required under Initiative 522 can be easily incorporated into one of these planned redesigns at zero additional cost and 2) food producers will not raise prices to offset the negligible expense of relabeling due to price adjustment costs and competitive pressures.

Below, I discuss the empirical evidence validating why food suppliers will not change prices at all to offset inconsequential labeling expenses imposed by Initiative 522. I then address the worst-case scenario: the price increases that would result if *all* producers pass on the *entire* one-time expense of redesigning labels and installing store placards to consumers.

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<sup>1</sup> INITIATIVE MEASURE NO. 522 Section 3 (a).



**A. For many food producers, label changes required by Initiative 522 can be incorporated into regularly scheduled label redesigns.**

Food manufacturers change labels at regular intervals, allowing them to incorporate regulatory changes into planned changes. The Food and Drug Administration has developed a Labeling Cost Model that is used to estimate the impact of regulatory labeling changes. The Model indicates that 75 percent of food product labels undergo at least one routine label change every 30 months, and many food products will undergo numerous planned changes during that time.<sup>2</sup>

The compliance period for Initiative 522 is 20 months:

*Sec. 3. (1) Beginning July 1, 2015, any food offered for retail sale in Washington is misbranded if it is, or may have been, entirely or partly produced with genetic engineering and that fact is not disclosed as follows:*<sup>3</sup>

Thus, assuming the routine label changes are linear over time in the FDA Model, at least 50 percent of the food products requiring labeling changes will be scheduled to undergo routine label changes during the 20-month compliance period. During these routine changes, the food producers can easily, and at no marginal cost, add the language required under Initiative 522. Thus, for at least half of the food products requiring label changes under Initiative 522, the changes can be made during routine label redesigns, costing the food producers nothing.

**B. For those food producers that may incur labeling expenses as a result of Initiative 522, barriers to price adjustments exist that will deter them from passing costs onto consumers.**

Food producers that are unable to add the disclosure of genetic engineering as part of a routine label change will incur certain costs as they redesign products' packaging labels. However, as I discuss in the following sections, the expense of relabeling and placards that disclose genetic engineering represent a trivial cost for both food manufacturers and food retail stores. Food manufacturers' average one-time expense to redesign labels—\$1,104.43 per product—represents only 0.14% of the estimated annual per-product sales of \$773,063. Similarly, the \$2,820 expense of placards represents 0.1% of the average annual per-store produce sales of \$2,733,275 and 0.01% of average supermarket annual sales of \$25,237,992.

Because food sellers incur costs every time they change prices, many food sellers will refrain from changing prices to pass on the labeling expenses imposed by Initiative 522. Based on the estimates of relabeling expenses computed in the following sections, there are three reasons why relabeling expenses under Initiative 522 will not justify the cost of re-pricing for many food sellers: (1) relabeling expenses will represent a trivial cost for most sellers, (2) relabeling expenses are a one-time expense rather than a permanent cost increase, and (3) in the rare occasion when relabeling expenses do justify a price increase, competitive pressures will deter many food sellers from changing prices.

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<sup>2</sup> Food and Drug Administration, *Food Labeling: Trans Fatty Acids in Nutrition Labeling, Nutrient Content Claims, and Health Claims*, 68 Federal Register 41477 (2003).

<sup>3</sup> INITIATIVE MEASURE NO. 522 Section 3 (a).

**1. Price-adjustment costs will deter many food producers from raising prices to offset the trivial expense of relabeling under Initiative 522.**

Changing food prices in supermarkets is “a complex process, requiring dozens of steps and a nontrivial amount of resources.”<sup>4</sup> The literature has established two primary categories of price adjustment costs that are relevant for food products: the physical cost of price changes and the management costs of price changes. The physical costs of re-pricing are referred to in the economic literature as “menu costs” and they include “(1) the labor cost of changing shelf prices, (2) the costs of printing and delivering new price tags, (2) the costs of mistakes made during the price change process, and (4) the cost of in-store supervision of the price change process.”<sup>5</sup> Measurements of menu costs conclude that the *per-product/per-store* cost of price changes averages \$0.52 per price change.<sup>6</sup>

Other studies have focused on price adjustment costs other than the physical costs of changing prices. Several studies have compiled interview data with corporate price setters and established that management costs are also a significant cost of price adjustments.<sup>7</sup> These management costs include the time and attention required of managers to gather the relevant information and to make and implement price-adjustment decisions. For example, they find that price adjustments require a great deal of information gathering of customer, company, and competitor data. Then, various organizational members, potentially including members from the sales, marketing, and finance departments, spend time either making price change decisions or executing these decisions. Ultimately, these studies find that management costs represent a nontrivial cost of price adjustments. In fact, their data suggest that the management costs of price changes are greater than the physical costs, or menu costs, of price changes. Moreover, confirming the importance of management costs in limiting price changes, other empirical studies show that even when the physical cost of changing prices is zero, firms often refrain from making price changes.<sup>8</sup>

A substantial body of literature has established that sellers change prices in response to cost increases only if the “desired adjustment is large enough to warrant paying the menu cost. That is, firms respond to large [cost] shocks but not to small [cost] shocks.”<sup>9</sup> As I discuss in the following sections, the expense of relabeling and placards that disclose genetic engineering represent a trivial cost for food manufacturers and food retail stores. Thus, the cost of physically changing product prices will deter many food producers from passing on the labeling expenses imposed by Initiative 522.<sup>10</sup>

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4 Daniel Levy, Mark Bergen, Shantanu Dutta, & Robert Venable, *The Magnitude of Menu Costs: Direct Evidence from Large U.S. Supermarket Chains*, 112 QUARTERLY JOURNAL OF ECONOMICS 791, 792 (1997).

5 *Id.*

6 *Id.* at 793.

7 M. Zbaracki, et al., *Managerial and customer costs of price adjustment: direct evidence from industrial markets*, 86 REVIEW OF ECONOMICS AND STATISTICS 514 (2004); M. Zbaracki, M Bergen & D. Levy, *The anatomy of a price cut: discovering organizational sources of the costs of price adjustment*, Working Paper, Bar-Ilan University and Emory University (2006); AS Blinder, *Why are prices sticky? Preliminary results from an interview study*, 81 AMERICAN ECONOMIC REVIEW 89 (1991); AS Blinder, et al., *ASKING ABOUT PRICES: A NEW APPROACH TO UNDERSTANDING PRICE STICKINESS* (1998).

8 R. Chakrabarti & Scholnick B., *The mechanics of price adjustment: new evidence on the (un)importance of menu costs*, 28 MANAGERIAL AND DECISION ECONOMICS 657 (2007).

9 See, e.g., Laurence Ball & N. Gregory Mankiw, *Relative Price Changes as Aggregate Supply Shocks*, 110 QUARTERLY JOURNAL OF ECONOMICS 161, 162 (1995).

10 Arthur Fishman & Avi Simhon, *Can small menu costs explain sticky prices?*, 87 ECONOMIC LETTERS 227 (2005)

**2. Relabeling expenses under Initiative 522 are a one-time, rather than a permanent, cost increase, and many sellers will not be willing to incur the repercussions of re-pricing to offset a trivial, one-time expense.**

In addition, the relabeling and placard expenses are one-time expenses that food producers and retail food stores will bear only once to meet the requirements of Initiative 522. Existing literature on food prices reveals that while retail prices may adjust to reflect permanent changes in costs, there is often no change in retail prices following such temporary changes in expenses.<sup>11</sup> The studies conclude that it is often not in sellers' best interest to change prices in response to a temporary expense because of the menu costs of changing prices and the risk of losing customers who think price changes are permanent.<sup>12</sup> Moreover, in the highly competitive food industry, economic theory predicts that permanently higher prices that do not offset permanently higher expenses are an unsustainable strategy for firms that wish to remain competitive. Thus, firms would have to raise, and then lower, consumer prices in response to a one-time price increase. The menu costs associated with these two price changes are certainly too high to justify changing many consumer prices to offset the expense of relabeling or placards.

The fear of losing customers in the competitive food industry is an important deterrent to changing prices.

Moreover, if even a few food suppliers refrain from passing on the one-time expense of relabeling, many competitors will also be deterred from passing on the expenses. In the competitive food retail industry, price increases in one product can cause many consumers to substitute away from the newly priced product to similar products that have not experienced price increases. Thus, even for firms that may otherwise increase prices to pass on the trivial expense of relabeling, competitive pressures may deter them from doing so.

Indeed, several recent empirical papers show that the desire to keep current customers is an important factor in food suppliers not raising prices to pass on costs.<sup>13</sup> The studies show that firms' price changing decisions are dynamic in the sense that they care not only about costs and revenues in the current period, but also in future periods. As a result, firms are less likely to change current prices when doing so may result in losing sales as customers switch to a competing product. The studies find that this resistance is especially strong when cost increases are temporary, like the possible one-time relabeling expense imposed by Initiative 522. Moreover, survey research confirms that a primary reason firms don't change prices in response to many cost changes is because of the fear of losing customers.<sup>14</sup> The findings of these empirical studies have important implications for Initiative 522: even if relabeling expenses are substantial enough to justify the cost of re-pricing, many suppliers will refrain from changing prices from fear of losing customers to other products that have not increased prices.

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11 Daniel Levy, Shantanu Dutta & Mark Bergen, *Heterogeneity in Price Rigidity: Evidence from a Cast Study Using Microlevel Data*, 34 JOURNAL OF MONEY, CREDIT, AND BANKING (2002);

12 See, e.g. Dennis Carlton, *The Theory and the Facts of How Markets Clear: Is Industrial Organization Valuable for Understanding Macroeconomics?* in 1 HANDBOOK OF INDUSTRIAL ORGANIZATION, 909 (Richard Schmalensee and Robert D. Willig, eds; 1989).

13 Isaac Kleshchelski & Nicolas Vincent, *Market share and price rigidity*, 56 JOURNAL OF MONETARY ECONOMICS 344 (2009); Martin Uribe, Morten Ravn, and Stephanie Schmitt-Grohe, *Incomplete Cost Pass-Through Under Deep Habits*, NATIONAL BUREAU OF ECONOMIC RESEARCH PAPER # 12961 (2007), available at: <http://www.nber.org/papers/w12961>

14 A. S. Blinder, et al., *ASKING ABOUT PRICES: A NEW APPROACH TO UNDERSTANDING PRICE STICKINESS* (1998). S. Fabiani et al., *What Firms' Surveys Tell Us about Price-Setting Behavior in the Euro Area*, 2 INTERNATIONAL JOURNAL OF CENTRAL BANKING (2006).

### C. Worst-case scenario: Trivial increase in consumer prices from labeling

As a result of the required genetic engineering disclosure, some food producers will incur minor expenses to redesign package labels and display placards in grocery stores. As previously discussed, most food producers will not increase consumer prices to offset this one-time, minor expense. However, this section estimates the worst-case scenario: the price increases that would result if *all* producers pass on the *entire* one-time expense of redesigning labels and installing store placards. As I show, prices for packaged products would only have to increase by, on average, 0.14% to offset the entire one-time expense of redesigning labels. Similarly, produce prices would have to increase by only 0.1% to account for the new expense of placards disclosing genetic engineering. Thus, in the very unlikely event of a price increase resulting from Initiative 522, the average individual in Washington would spend an extra \$2.20 across all products, in one year only.

#### 1. Estimate of negligible labeling expenses

Food producers that are unable to add the disclosure of genetic engineering as part of a routine label change will incur certain one-time costs as they redesign product packaging labels. To estimate the average increase in labeling expenses, I use the Food and Drug Administration's (FDA) estimated cost of label changes following new regulatory requirements. Then I compare the additional labeling expense for each unique product to the average annual per-product sales in Washington to compute the percentage increase in sales revenue required to offset the new labeling expense. Assuming constant consumer demand, I estimate average price increases required to achieve this increase in sales revenue.

FDA has estimated the costs of one-time alterations to package labels in its required Regulatory Impact Analyses for various regulations.<sup>15</sup> FDA uses a Labeling Cost Model to calculate the cost of a new label based on the product type, label type, type of analytical and market tests necessary to develop the new label, compliance time, and inflation.<sup>16</sup> Included in their estimated costs of relabeling are administrative, graphic design, pre-press preparation, printing and engraving, and the lost inventory value of discarded labels.<sup>17</sup> FDA's estimates recognize that the costs of changing labels vary across products because different packaging converters and food manufacturers have different packaging costs.

In addition, the estimates reflect that the cost of redesigning labels decreases as the length of the compliance period increases. Manufacturers change labels or, at least, reorder them at regular intervals. For example, FDA has estimated that three-quarters of package labels are normally scheduled to be changed during any 30-month period.<sup>18</sup> A longer compliance period allows manufacturers to incorporate new regulatory requirements into scheduled label changes. As a result, labels can be altered to reflect new requirements at little additional cost.

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<sup>15</sup> Executive Order 12866 directs agencies to assess all costs and benefits of available regulatory alternatives and, when regulation is necessary, to select regulatory approaches that maximize net benefits.

<sup>16</sup> Food and Drug Administration, *Food Labeling: Health Claims; Soluble Fiber from Certain Foods and Risk of Coronary Heart Disease; Final Rule*, 73 Federal Register 23952 (2008)

<sup>17</sup> Food and Drug Administration, *Preliminary Regulatory Impact Analysis and Initial Regulatory Flexibility Analysis of the Proposed Rules to Ensure the Safety of Juice and Juice Products*, 63 Federal Register 24274 (1998)

<sup>18</sup> Food and Drug Administration, *Food Labeling: Trans Fatty Acids in Nutrition Labeling, Nutrient Content Claims, and Health Claims*, 68 Federal Register 41477 (2003).

The compliance period of Initiative 522 is approximately 20 months (November, 2013 to July, 2015). As reported in Table 1, FDA has estimated that the per-product cost of a label change is \$1,903.38 for a one-year compliance period and \$704.96 for a two-year compliance period.<sup>19</sup> The costs decrease over time to reflect the fact that many food producers will be able to redesign package labels to include genetic engineering disclosures as part of their regular, scheduled label changes. Thus, assuming the cost of a label change is linear over time, the average per-product cost of redesigning labels for a 20-month compliance period would be \$1,104.43, based on FDA estimates.

**Table 1:**  
**FDA Estimates of Label Change Costs per Product for**  
**Different Lengths of Compliance Period<sup>20</sup>**

	<b>1 YEAR</b>	<b>2 YEAR</b>
<b>Administrative Costs</b>	\$1268.92	\$634.46
<b>Redesign Costs</b>	\$634.46	\$70.50
<b>Inventory Loss</b>	\$0.00	\$0.00
<b>Total Cost</b>	\$1,903.38	\$704.96

Every year, the Food Marketing Institute (FMI) publishes an industry-wide report with detailed information on food retailer sales, operations, store-level benchmarks, and competitive issues.<sup>21</sup> The information is drawn from many sources including survey responses representing over 24,000 stores, performance data from stores, and annual reports for stockholders and 10-K reports filed with the Securities and Exchange Commission.

The FMI reports store averages for various kinds of food retailers: conventional supermarkets, warehouse stores, super/combo stores, limited assortment stores, convenience stores, and niche/specialty stores. According to the 2010 FMI report, food retailers in the United States carry an average of 36,928 unique products.<sup>22</sup> The average product generates weekly sales of \$12.95,<sup>23</sup> or \$673.40 per year.

<sup>19</sup> In 2012 dollars. The original estimates were reported in 1998 dollars (Food and Drug Administration, *Preliminary Regulatory Impact Analysis and Initial Regulatory Flexibility Analysis of the Proposed Rules to Ensure the Safety of Juice and Juice Products*, 63 Federal Register 24275 (1998)) I adjusted the estimates using the Bureau of Labor Statistics' Inflation Calculator available at: [http://www.bls.gov/data/inflation\\_calculator.htm](http://www.bls.gov/data/inflation_calculator.htm). Although these label change estimates are based on juice labels, they are similar to FDA's estimates for a wider range of products: "Across product categories, the average low relabeling cost per SKU is about \$1,100 and the average high relabeling cost per SKU is \$2,600." Food and Drug Administration, *Food Labeling: Trans Fatty Acids in Nutrition Labeling, Nutrient Content Claims, and Health Claims*, 68 Federal Register 41477 (2003). Thus, across a broader range of food products, average relabeling costs per product would be \$1850. Although the per-product estimate I use is slightly lower, I assume that all food products will incur this relabeling cost. In contrast, in the Regulatory Impact Analysis in which FDA uses the average relabeling costs per product of \$1850, FDA assumes that only 25% of products will incur this relabeling cost. *Id.*

<sup>20</sup> *Id.*

<sup>21</sup> FOOD MARKETING INSTITUTE, THE FOOD RETAILING INDUSTRY SPEAKS (2010), available for purchase at: [http://www.fmi.org/forms/store/ProductFormPublic/search?action=1&Product\\_productNumber=2318](http://www.fmi.org/forms/store/ProductFormPublic/search?action=1&Product_productNumber=2318)

<sup>22</sup> *Id.* at 86. I computed the overall average by weighting the average of each category of food retailer by the number of respondents in each category (bottom panel of Table 15)

<sup>23</sup> *Id.* at 33.



Most products are sold in numerous stores across Washington. Using data on Washington grocery stores and product availability, I estimate the annual sales in Washington of the average food product.

In the most recent Economic Census, the U.S. Census Bureau reports that Washington is home to 2,029 grocery stores, which include conventional supermarkets and convenience stores that are primarily engaged in marketing food products. A recent report by the FTC Bureau of Economics uses weekly scanner data on 22,207 products and fourteen retailer-city combinations for a three-year period to estimate the product availability across different retailers. Based on these data, FTC estimates that the average food product is available in 56.6% of food retail stores.<sup>24</sup> Thus, the average food product in Washington would be available in 1,148 stores (56.6% of the 2,029 food retail stores).

Based on these data, I compute a conservative estimate of the average annual sales per product in Washington. As the average food product generates annual sales of \$673.40 per store and is carried in 1,148 stores, then each product generates average annual sales of \$773,063 across all grocery stores in Washington (1,148 stores \* \$673.40 per store). This estimate likely underestimates the average annual state-wide sales because it ignores sales in the other 3,570 non-grocery retailers that also sell food products in Washington: specialty food stores, beer, wine, or liquor stores that also sell groceries, general merchandise stores selling groceries, health and personal care stores that sell groceries, and gasoline stations that sell groceries.<sup>25</sup>

Nevertheless, the average one-time expense to redesign labels of \$1,104.43 per product represents only 0.14% of the estimated annual per-product sales of \$773,063. That is, if the average product generated approximately one-tenth of one percent more sales revenue in one year, this would completely offset the relabeling expense of \$1,104.43.

## 2. Estimate of minor expense to place placards in stores

Initiative 522 may also require some food retailers to display placards disclosing genetic engineering for products that are not separately packaged:

*(a) In the case of a raw agricultural commodity, on the package offered for retail sale, with the words “genetically engineered” stated clearly and conspicuously on the front of the package of such a commodity, or in the case of such a commodity that is not separately packaged or labeled, on a label appearing on the retail store shelf or bin where such a commodity is displayed for sale;<sup>26</sup>*

To estimate the average per-store expense of placards as producers disclose genetic engineering, I use the FDA’s estimated placard costs to disclose certain warnings about minimally-processed juices. Then, I compare the average square footage devoted to minimally-processed juices to the average square footage devoted to fruits and vegetables

<sup>24</sup> I computed this average from Table 1: using the midpoint of each range in the first column and the average in the last column. See Appendix 1 for the full table. Steven Tenn & John Yun, *Biases in Demand Analysis Due to Variation in Retail Distribution*, FTC Bureau of Economics Working Paper No. 287 at 27 (2007), available at: <http://www.ftc.gov/bc/workpapers/wp287.pdf>

<sup>25</sup> I exclude this data because the ACNielsen scanner data that the FTC uses to estimate product availability concentrates on grocery stores. See Appendix 2 for the number of establishments per retailer category. U.S. CENSUS BUREAU, RETAIL TRADE: SUBJECT SERIES— PRODUCT LINES: PRODUCT LINES STATISTICS BY KIND OF BUSINESS FOR THE UNITED STATES AND STATES (2007), available at: <http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml>

<sup>26</sup> INITIATIVE MEASURE NO. 522 Section 3 (a).

in supermarkets. I assume that the number of required placards is a function of display area. I also assume that placards will be displayed throughout the produce section. This will necessarily overstate the true expense of placards because many supermarkets sell few or no genetically modified fruits and vegetables in their produce departments. Although FDA has *approved* production of genetically modified varieties of plums, cantaloupe, papaya, squash, radicchio, tomatoes, and potatoes, many of these varieties are difficult to produce under field conditions so they are never marketed in supermarkets.<sup>27</sup>

FDA has estimated the costs of placards in supermarkets as part of its Regulatory Impact Analyses for various regulations. FDA has recently estimated that the average per-store cost of placards displaying warning labels for minimally processed juices in supermarkets is \$141.<sup>28</sup> This estimate includes both the cost of periodic replacement and the possibility that some stores may have to display multiple placards to meet the requirement that warnings be available at the point of purchase.

The typical supermarket devotes approximately 150 square feet to minimally processed juices.<sup>29</sup> In contrast, the typical supermarket devotes 2831 square feet to the produce department.<sup>30</sup> Thus, in the average supermarket, the produce department is approximately 20 times larger than the display of minimally processed juices. Assuming placards are displayed throughout the produce department and the number of required placards is a function of display area, then the average per-store expense of placards will be \$2,820 (\$141\*20). However, this estimate is certain to be an overestimate of the actual per-store expense of placards because many stores sell few or no genetically modified fruits and vegetables in their produce section.

If produce-item placards cost an additional \$2,820 per store, this represents a trivial expense compared to the sales generated from the produce department in the average grocery store. The Food Marketing Institute reports that, in 2010, produce sales account for 10.83% of total supermarket sales<sup>31</sup> and the average supermarket had annual sales of \$25,237,992.<sup>32</sup> Thus, annual produce sales are \$2,733,275 at the average supermarket. As a result, the \$2,820 expense of placards represents 0.1% of the average annual *produce* sales and 0.01% of average supermarket annual sales.

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27 Marion Nestle, *Genetically Modified Foods in Supermarkets: How Many?*, THE ATLANTIC (Sep 24 2010), available at [www.theatlantic.com/health/archive/2010/09/genetically-modified-foods-in-supermarkets-how-many/63446/](http://www.theatlantic.com/health/archive/2010/09/genetically-modified-foods-in-supermarkets-how-many/63446/); PETER TYSON, PBS, *HARVEST OF FEAR: SHOULD WE GROW THEM*, available at: <http://www.pbs.org/wgbh/harvest/exist/>.

28 In 2012 dollars. The original estimates were presorted in 1998 dollars (Food and Drug Administration, *Preliminary Regulatory Impact Analysis and Initial Regulatory Flexibility Analysis of the Proposed Rules to Ensure the Safety of Juice and Juice Products*, 63 Federal Register 24274 (1998))

29 Display area is reported in linear feet. I assume the depth of a display area is 3 feet (likely an overestimate), so that square footage=linear feet\*3. EDWARD W. McLAUGHLIN & DAVID M. RUSSO, CORNELL FOOD INDUSTRY MANAGEMENT PROGRAM, *SUPERMARKET DAIRY DEPARTMENT: AN OVERVIEW OF OPERATIONS AND PERFORMANCE* 6 (1991), available at: [http://dyson.cornell.edu/outreach/extensionpdf/1991/Cornell\\_AEM\\_eb9118.pdf](http://dyson.cornell.edu/outreach/extensionpdf/1991/Cornell_AEM_eb9118.pdf)

30 Debra Chanil & Meg Major, *2011 Produce Operations Review*, PROGRESSIVE GROCER (October, 2011), available at: <http://www.progressivegrocer.com/inprint/article/id2272/picking-up-the-pace/>

31 FOOD MARKETING INSTITUTE, *SUPERMARKET SALES BY DEPARTMENT* (2010), available at: <http://www.fmi.org/docs/facts-figures/grocerydept.pdf?sfvrsn=2>.

32 To compute the annual average, I multiplied the average weekly sales by 52. FOOD MARKETING INSTITUTE, *THE FOOD RETAILING INDUSTRY SPEAKS* 23 (2010), available for purchase at: [http://www.fmi.org/forms/store/ProductFormPublic/search?action=1&Product\\_productNumber=2318](http://www.fmi.org/forms/store/ProductFormPublic/search?action=1&Product_productNumber=2318)

### 3. Worst-case scenario: trivial increase in consumer prices

Thus, the average expense of redesigning labels is estimated to be \$1,104.43 per product and the average expense of displaying placards disclosing genetic engineering will be less than \$2,820 per store. In this section, I estimate the worst-case scenario: the price increases that would result if *all* producers pass on, to consumers, the *entire* one-time expense of redesigning labels and installing store placards.

The Consumer Expenditure Survey is a Federal survey that provides information on the complete range of consumers' expenditures and incomes, as well as the characteristics of those consumers.<sup>33</sup> The survey data are collected for the Bureau of Labor Statistics by the U.S. Census Bureau. It is used by economic policymakers examining the impact of policy changes on economic groups, by businesses and academic researchers studying consumers' spending habits and trends, by other Federal agencies, and, to regularly revise the Consumer Price Index market basket of goods and services and their relative importance.

From the 2012 Consumer Expenditure Survey (the most recent year with state-specific data available), I computed the average annual food expenditures by consumer unit, or household, in Washington.<sup>34</sup> Table 2 reports the results.

Many categories of food will be exempt from labeling under Initiative 522. For example, under the Initiative, the entire categories of meat, other animal products such as eggs and milk, and alcoholic beverages are exempt from labeling:

*(3) Subsection (1) of this section does not apply to any of the following:*

*(a) Food consisting entirely of, or derived entirely from, an animal that has not itself been genetically engineered, regardless of whether the animal has been fed or injected with any food produced with genetic engineering or any drug that has been produced through means of genetic engineering;*

*(b) A raw agricultural commodity or food that has been grown, raised, produced, or derived without the knowing and intentional use of genetically engineered seed or food. To be included within the exclusion under this subsection, the person supplying a raw agricultural commodity or food must provide a sworn statement that the raw agricultural commodity or food: (i) Has not been knowingly or intentionally produced through genetic engineering; and (ii) has been segregated from, and has not been knowingly or intentionally commingled with, foods that may have been genetically engineered at any time. In providing such a sworn statement, a person may rely on a sworn statement from his or her own supplier that contains such an affirmation;*

*(d) Any alcoholic beverage that is subject to regulation under Title 66 RCW;<sup>35</sup>*

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33 BUREAU OF LABOR STATISTICS, CONSUMER EXPENDITURE SURVEY (public-use micro data, 2012) available at: <http://www.bls.gov/cex/home.htm>

34 A consumer unit is defined as members of a household related by blood, marriage, adoption, or other legal arrangement; a single person living alone or sharing a household with others but who is financially independent; or two or more persons living together who share responsibility for at least 2 out of 3 major types of expenses – food, housing, and other expenses. The terms household or consumer unit are used interchangeably for convenience. In Washington, the average consumer unit taking part in the Consumer Expenditure Survey is composed of 2.31 people.

35 INITIATIVE MEASURE NO. 522 Section 3 (3a), (3b), (3d)

**Table 2:**  
**Average Annual Food Expenditures by Household:**  
**U.S. Census Bureau Consumer Expenditure Survey, 2012**

	<b>Washington</b>
<b>Food</b>	\$7,147
<b>Food at home</b>	\$4,715
<b>Cereals and bakery products</b>	\$642
<b>Cereals and cereal products</b>	\$219
<b>Bakery products</b>	\$423
<b>Meats, poultry, fish, and eggs</b>	\$930
<b>Beef</b>	\$217
<b>Pork</b>	\$186
<b>Other meats</b>	\$132
<b>Poultry</b>	\$167
<b>Fish and seafood</b>	\$165
<b>Eggs</b>	\$63
<b>Dairy products</b>	\$463
<b>Fresh milk and cream</b>	\$148
<b>Other dairy products</b>	\$315
<b>Fruits and vegetables</b>	\$989
<b>Fresh fruits</b>	\$373
<b>Fresh vegetables</b>	\$294
<b>Processed fruits</b>	\$171
<b>Processed vegetables</b>	\$151
<b>Other food at home</b>	\$1,690
<b>Sugar and other sweets</b>	\$184
<b>Fats and oils</b>	\$121
<b>Miscellaneous foods</b>	\$992
<b>Nonalcoholic beverages</b>	\$393
<b>Food away from home</b>	\$2,432
<b>Alcoholic beverages</b>	\$545
<b>TOTAL FOOD AND BEVERAGE EXPENDITURE</b>	<b>\$7,692</b>

Figure 1 summarizes the relative annual expenditure per Washington household for food and beverages. As a result of the exemptions, the foods *potentially* requiring labeling represent less than 50% of total household food expenditure.

**Figure 1:**

**Washington Annual Household Food Expenditure for Foods Requiring Labeling**

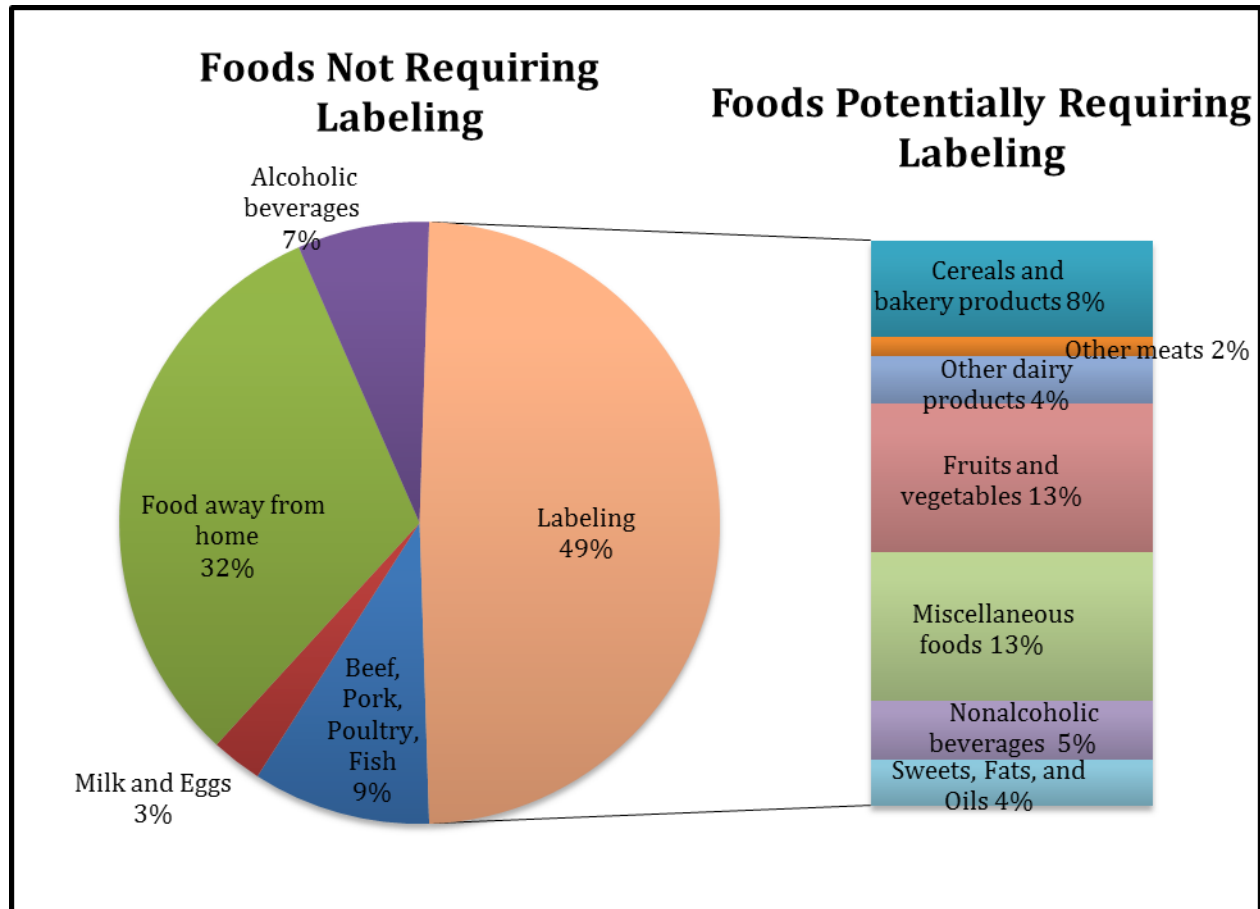




Table 3 reports the average annual expenditure by Washington households for the food categories that will potentially be required to alter package labeling to disclose genetic engineering:

**Table 3:**  
**Average Annual Household Expenditure in Washington for Products Potentially Requiring Package-Label Redesign**

<b>Cereals and cereal products</b>	\$219
<b>Bakery products</b>	\$423
<b>Other meats</b>	\$132
<b>Other dairy products</b>	\$315
<b>Processed fruits</b>	\$171
<b>Processed vegetables</b>	\$151
<b>Sugar and other sweets</b>	\$184
<b>Fats and oils</b>	\$121
<b>Miscellaneous foods</b>	\$992
<b>Nonalcoholic beverages</b>	\$393
<b>TOTAL</b>	<b>\$3,101</b>

Assuming that *all* producers pass on the *entire* one-time expense of \$1,104.43 for label redesign, average prices in these food categories would increase—for one year only—by 0.14%. If prices increased by 0.14%, Washington households would spend \$4.34 (\$3,101\*0.0014) more for food in these categories for just one year.<sup>36</sup> That translates into an expenditure of less than \$1.88 per person to offset the one-time expense of redesigning labels.<sup>37</sup>

Table 4 reports the average annual household expenditure in Washington on fresh fruits and vegetables. Assuming that *all* food retail stores pass on the *entire* one-time expense of installing “genetically engineered” placards in supermarket produce sections, the price of fruits and vegetables would increase by 0.1% *for one year only*. If prices increased by 0.1% *for one year only*, Washington households would spend 67 cents (\$667\*0.001) more for fresh fruits and vegetables, or less than 30 cents per person.<sup>38</sup>

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<sup>36</sup> This assumes that consumer demand does not change in response to the increase in prices—a reasonable assumption given that demand for the entire category of food is inelastic and a 0.03% or 0.1% price increase represents a trivial increase in expenditure.

<sup>37</sup> In Washington, the average consumer unit taking part in the Consumer Expenditure Survey is composed of 2.31 people.

<sup>38</sup> In Washington, the average consumer unit taking part in the Consumer Expenditure Survey is composed of 2.31 people.

**Table 4:**  
**Average Annual Household Expenditure in  
Washington for Fresh Fruits and Vegetables**

<b>Fresh fruits</b>	\$373
<b>Fresh vegetables</b>	\$294
<b>TOTAL</b>	<b>\$667</b>

**Thus, for the average individual in Washington, total annual food expenditure could increase by less than \$2.20—for one year only—as a result of Initiative 522.** This increase in expenditure would completely offset the average one-time expense that food producers incur when they alter their package labeling or display placards to disclose genetic engineering. A single annual expenditure of \$2.20 represents a trivial, 0.065% increase above the current average annual food and beverage expenditure.

However, **this estimate is certain to be an overestimate** of the average increase in household expenditure for three reasons. First, it assumes that *all* food producers will pass on the *entire* one-time expense of redesigning labels by increasing prices. However, as previously discussed, many consumer prices will not increase to offset the insignificant expenses of relabeling and store placards for 2 reasons: 1) food producers routinely redesign and reprint labels so the wording required under Initiative 522 can be easily incorporated into one of these planned redesigns at zero additional cost and 2) food producers will not raise prices to offset the expense of relabeling due to price adjustment costs and competitive pressures.

Second, this estimate is certain to be an overestimate because it assumes that all stores will display numerous placards disclosing genetic engineering throughout the produce department. In reality, many stores sell few or no genetically-modified fruits and vegetables in their produce section.

Finally, this estimate assumes that all products within these broad food categories will require relabeling. In reality, many products within these categories will not require relabeling (1) if the producers receive a sworn statement from their supplier that the food has not been “knowingly or intentionally” genetically engineered or comingled with genetically engineered food,<sup>39</sup> (2) if an *independent organization determines* that the food has not been “knowingly or intentionally” genetically engineered or comingled with genetically engineered food,<sup>40</sup> or (3) if the food has been certified to be labeled “organic” under federal law.<sup>41</sup>

39 INITIATIVE MEASURE NO. 522 Section 3 (3b)

40 *Id.* at Section 3 (3f)

41 *Id.* Section 3 (3g)

## II. The Minor Costs of Possible Litigation

If there is an increase in litigation associated with Initiative 522, it may result in minor costs for the State of Washington. The Initiative allows state, local, or private parties to sue for violations. The magnitude of these potential litigation costs is unknown, as it depends on the number of cases filed, the number of cases prosecuted by state and local governments, and how they are adjudicated by the courts.<sup>42</sup> However, it is possible to estimate the costs using projections by the Washington Department of Health and existing data on caseloads and judicial budgets.

### A. Costs of Attorney General litigation

Initiative 522 *may impose minor additional costs on the State of Washington if the Office of the Attorney General (AG) brings actions under Initiative 522 or the office reviews and responds to allegations of violations and notices of private action*: “The department, acting through the attorney general, may bring an action in a court of competent jurisdiction to enjoin any person violating this chapter.”<sup>43</sup> *However, the AG will likely bring few actions under the Act; most actions are likely to be private actions, imposing little cost to the State of Washington. Moreover, the cost of the AG reviewing and responding to allegations of violations and notices of private action will impose only minimal costs on the state.*

Although it is impossible to estimate the frequency of enforcement actions, the Office of Financial Management (OFM) of the State of Washington has projected that there will be 10 enforcement actions per year under Initiative 522:

*There are potential expenditure impacts for judicial and staff time for superior court filings and hearings. Each action constitutes a court filing that will require judge and staff time and at least one hearing before a superior court judge. There is no data to predict the number of filings, although the Department of Health (DOH) estimates 10 enforcement actions per year. Judicial Information System data shows that the majority of these cases are concluded after a summary judgment hearing, with a small number of cases proceeding to either bench trial or jury trial.*<sup>44</sup>

*As the AG provides legal services on behalf of the people of Washington, the state incurs the costs of any actions brought by the AG under Initiative 522. However, the OFM has estimated that the enforcement actions will cost less than \$50,000 per year*<sup>45</sup>.

### B. Costs of private litigation

Initiative 522 also allows any private individual to bring an action in a court of competent jurisdiction seeking an injunction against persons violating the elements of the bill: “An action to enjoin a violation of this chapter may be brought in any court of competent jurisdiction by any person in the public interest if the action is commenced more than sixty days after the person has given notice of the alleged violation to the department, the

42 OFFICE OF FINANCIAL MANAGEMENT, STATE OF WASHINGTON, MULTIPLE AGENCY FISCAL NOTE SUMMARY 2 (2013), *available at* <https://fortress.wa.gov/binaryDisplay.aspx?package=3437>

43 THE INITIATIVE, Section 5(1).

44 OFFICE OF FINANCIAL MANAGEMENT, STATE OF WASHINGTON, MULTIPLE AGENCY FISCAL NOTE SUMMARY 2 (2013), *available at* <https://fortress.wa.gov/binaryDisplay.aspx?package=3437>

45 *Id.*

attorney general, and to the alleged violator.”<sup>46</sup> The state will incur minor additional costs to process and hear the additional cases that may result from Initiative 522.

The number of trials resulting from case filings by Washington citizens will likely be under 10 trials per year. Prop 65, a consumer disclosure act in California, has resulted in only an average of 9 trials a year in the 27 years since it was enacted in a state with a much larger population than Washington. Moreover, substantive differences between the bills imply substantially more litigation resulting from Prop 65 compared to Initiative 522.<sup>47</sup>

However, even if Washington experienced 10 additional trials per year under Initiative 522, the costs would be trivial. Under the Washington State constitution, local jurisdictions pay for nearly the entire cost of operating the trial courts.<sup>48</sup> Most of the local jurisdictions will see no increase in the number of trials under Initiative 522, and at most, 10 counties may expect one additional trial. However, one additional trial will impose negligible costs on local jurisdictions. For example, in 2012 there were 445 trials in Thurston County Superior Court, the court at the seat of state government.<sup>49</sup> The annual funding for the Thurston County Superior Court in 2012 was \$5,762,844.<sup>50</sup> Thus, the per-trial cost of operating the court was approximately \$12,950. Assuming this per-trial cost for each of the additional trials under Initiative 522, the 10 additional cases would only cost Washington \$129,500. This estimate is certain to be an overestimate of the average per-trial cost because many of the costs of operating the trial courts are fixed (not changing as the number of cases changes), so that an additional case will only increase the variable costs.

### C. Total costs of increases in litigation

Thus, OFM has estimated that brought by the AG under Initiative 522 will cost less than \$50,000 per year. Private litigation is projected to cost less than \$129,500 per year. Thus, the total costs of increased litigation under Initiative 522 are expected to be less than \$179,500 annually. In per capita terms, an additional \$179,500 translates into a cost of \$0.026, or approximately 3 cents for each person living in the State of Washington.

## III. Negligible Administrative Costs

Initiative 522 may also impose administrative costs on Washington State, as the Department of Health (DOH) adopts regulations necessary to implement certain provisions in the measure. For example, the DOH will have to develop a new program to regulate the labeling requirement and regulations specifying the sampling and testing procedures necessary to determine whether foods contain genetically engineered ingredients.<sup>51</sup>

46 THE INITIATIVE, Section 5(3).

47 For a discussion, see JOANNA SHEPHERD-BAILEY, ECONOMIC ASSESSMENT: PROPOSED CALIFORNIA RIGHT TO KNOW GENETICALLY ENGINEERED FOOD ACT (PROP 37) LIKELY TO CAUSE NO CHANGE IN FOOD PRICES AND NEGLIGIBLE LITIGATION AND ADMINISTRATIVE COSTS (2012), *available at*: <http://www.anh-usa.org/wp-content/uploads/2012/08/GE-Food-Act-Costs-Assessment.pdf>

48 BOARD FOR JUSTICE ADMINISTRATION, WASHINGTON COURTS: CONSEQUENCES OF INADEQUATE FUNDING 3 (2010), *available at*: <http://www.courts.wa.gov/JusticeInJeopardy/documents/FundingSurvey.pdf>

49 WASHINGTON COURTS, SUPERIOR COURTS, TRIAL PROCEEDINGS BY TYPE OF CASE - 2012 ANNUAL REPORT (2012), *available at*: <http://www.courts.wa.gov/caseload/?fa=caseload.showReport&level=s&freq=a&tab=&fileID=trlyr>

50 THURSTON COUNTY 2013 BUDGET 43 (2013), *available at*: <http://www.co.thurston.wa.us/Budget/2013/2013-budget-policy-level-requests.pdf>

51 OFFICE OF FINANCIAL MANAGEMENT, STATE OF WASHINGTON, MULTIPLE AGENCY FISCAL NOTE SUMMARY (2013), *available at* <https://fortress.wa.gov/binaryDisplay.aspx?package=3437>

Initiative 522 does not specify the precise responsibilities the DOH will have under the Act:

*Sec. 4. The department may adopt rules necessary to implement this chapter, provided that the department is not authorized to create any exemptions beyond those provided in section 3(3) of this act.*<sup>52</sup>

Nevertheless, the Office of Financial Management (OFM) of the State of Washington has estimated various administrative costs likely to result from Initiative 522.

#### *State Expenditure and Cost Assumptions*

*DOH program development will include expenditures for rule making, inspection and compliance, as well as education and technical assistance to the food industry. The cost of these expenditures over six fiscal years is estimated at \$2,168,000. Beginning July 1, 2015, DOH will contract with a private laboratory for product sampling and testing as required in Initiative. Total cost of this expenditure over six fiscal years is estimated at \$1,200,000. The following table shows DOH estimated costs by fiscal year:*<sup>53</sup>

<b>Fiscal Year</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>COSTS</b>
Program Development	\$82,000	\$96,000	\$210,000	\$210,000	\$210,000	\$210,000	\$1,018,000
Rule Development	\$96,000	\$122,000	\$0	\$0	\$0	\$0	\$218,000
Compliance and Enforcement	\$0	\$0	\$239,000	\$231,000	\$231,000	\$231,000	\$932,000
Laboratory Sampling and Testing	\$0	\$0	\$300,000	\$300,000	\$300,000	\$300,000	\$1,200,000
<b>TOTAL</b>	<b>\$178,000</b>	<b>\$218,000</b>	<b>\$749,000</b>	<b>\$741,000</b>	<b>\$741,000</b>	<b>\$741,000</b>	<b>\$3,368,000</b>

Based on these figures, the average annual cost of Initiative 522 to the Department of Health is \$561,333, and OFM has projected that the annual cost will stabilize around \$741,000 for future years.

These costs will have an insignificant impact on the Washington budget. Table 5 reports the total annual budget for the State of Washington and the total budget for DOH in 2013. It also reports the trivial impact of \$741,000 in additional administrative costs on the State of Washington. The annual DOH budget in 2013 is \$475,526,500; thus an additional \$741,000 resulting from Initiative 522 will increase DOH expenditures by only 0.156%--well under a 1% increase.<sup>54</sup> The total state budget in 2013 is approximately \$16 billion; thus an additional \$741,000 resulting from Initiative 522 will increase total state expenditures by only 0.0045%.<sup>55</sup>

<sup>52</sup> THE INITIATIVE, Section 4.

<sup>53</sup> OFFICE OF FINANCIAL MANAGEMENT, STATE OF WASHINGTON, FISCAL IMPACT STATEMENT FOR INITIATIVE 522 (2013), *available at* <http://www.ofm.wa.gov/ballot/2013/I-522.pdf>

<sup>54</sup> The biennium budget for the DOH is \$ 951,053,000, so the annual budget is \$475,526,500. OFFICE OF FINANCIAL MANAGEMENT, STATE OF WASHINGTON, 2013-2015 OPERATING BUDGET, 3ESSB 5034 AS ENACTED 98 (2013), *available at*: <http://apps.leg.wa.gov/documents/billdocs/2013-14/Pdf/Bills/Session%20Laws/Senate/5034-S.SL.pdf>

<sup>55</sup> The biennium budget is \$32,796,100,000, so the annual budget is \$16,398,050,000. HOUSE AND SENATE FISCAL COMMITTEES AND OFFICE OF FINANCIAL MANAGEMENT, STATE OF WASHINGTON, 2011-2013 WITH ENACTED SUPPLEMENTALS AND 2013-2015 ENACTED BUDGET, BALANCE SHEET (2013), *available at*: <http://www.ofm.wa.gov/budget/info/currentbalance.pdf>



**Table 5:**  
**Washington Budget and Impact of \$741,000**  
**Administrative Costs of Initiative 522**

<b>Annual Budget</b>	<b>2013</b>
Total Annual Budget	\$16,398,050,000
Increase in Total Budget resulting from \$741,000 administrative costs of Initiative 522	0.0045%
DOH Annual Budget	\$ 475,526,500
Increase in DOH budget resulting from \$741,000 administrative costs of Initiative 522	0.156%

In sum, if Initiative 522 imposes annual administrative costs of \$741,000 (as OFM projects), the impact on Washington State would be trivial; DOH expenditures would increase by only 0.156% and total state expenditures would increase by only 0.0045%. In per capita terms, an additional \$741,000 translates into a cost of \$0.104, or approximately 11 cents for each person living in the State of Washington.





## About the Author

**Joanna Shepherd-Bailey, Ph.D.**, received her doctorate in Economics from Emory University, with concentrations in Econometrics/Statistics and Law & Economics. She is currently a tenured professor at Emory University School of Law, and was previously a professor of Economics at Emory University, Clemson University and Georgia State University. She previously worked on the Economic Research Team at the Atlanta Federal Reserve Bank. Professor Shepherd-Bailey has taught numerous courses in statistics, econometrics, economics, and other analytical courses to undergraduates, Ph.D. students, and law students. She has published numerous empirical articles that have appeared in leading peer-reviewed economics journals, peer-reviewed law journals, and law reviews. The majority of these articles involved a detailed statistical analysis of legal changes or legal institutions. She has testified about her statistical work before the U.S. House of Representatives' Judiciary Committee and the National Academy of Sciences.

**Appendix 1:**  
**Product Availability across Food Retail Stores<sup>56</sup>**

<b>Available in Percent of Stores:</b>	<b>Percent of Products</b>
0% to 10%	14%
10% to 20%	11%
20% to 30%	6%
30% to 40%	5%
40% to 50%	5%
50% to 60%	6%
60% to 70%	7%
70% to 80%	9%
80% to 90%	11%
90% to 99%	12%
99% to 100%	13%

**Appendix 2:**  
**Number of Food Retailers selling Food Products  
in Washington; U.S. Census Bureau<sup>57</sup>**

<b>Year</b>	<b>NAICS Code</b>	<b>Food Retailer</b>	<b>Number of Establishments selling Groceries</b>	<b>Sales of Groceries</b>
2007	44511	Grocery Stores	2,029	\$ 8,404,594,000
2007	4452	Specialty Food Stores	630	\$ 346,359,000
2007	4453	Beer, wine and liquor stores	23	\$ 2,601,000
2007	446	Health and Personal	575	\$ 136,199,000
2007	447	Gasoline Stations	1,824	\$ 563,021,000
2007	452	General Merchandise	518	\$ 4,204,405,000

<sup>56</sup> Reproduced from Steven Tenn & John Yun, *Biases in Demand Analysis Due to Variation in Retail Distribution*, FTC Bureau of Economics Working Paper No. 287 (2007), available at: <http://www.ftc.gov/be/workpapers/wp287.pdf>

<sup>57</sup> U.S. CENSUS BUREAU, RETAIL TRADE: SUBJECT SERIES - PRODUCT LINES: PRODUCT LINES STATISTICS BY KIND OF BUSINESS FOR THE UNITED STATES AND STATES (2007), available at: <http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t>



**Appendix 3:**  
**CURRICULUM VITAE**  
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**PUBLICATIONS:**

***Major Articles***

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## **Books**

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## **Essays and Book Chapters**

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- *Judicial Opposition as Politics*, 166 JOURNAL OF INSTITUTIONAL AND THEORETICAL ECONOMICS 88 (2010).
- *The Economics of Capital Punishment*, in CRIMINAL LAW AND ECONOMICS 207 (Nuno Garoupa ed., 2010)
- *Delaware Corporate Law: Failing Law, Failing Markets*, with William J. Carney & George B. Shepherd in THE LAW AND ECONOMICS OF CORPORATE GOVERNANCE: CHANGING PERSPECTIVES (Alessio M. Paccas, ed., 2010, forthcoming)
- *The Demographics of Tort Reform*, with Paul H. Rubin. 4 THE REVIEW OF LAW & ECONOMICS 591 (2008).
- *The Economics of Crime*, with Erling Eide and Paul H. Rubin, 2 FOUNDATIONS AND TRENDS IN MICROECONOMICS 291 (2006).
- *The Relationship between Prison Populations and Crime: Causes and Impacts*, 5 CRIMINOLOGY AND PUBLIC POLICY 285 (2006).
- *The Deterrent Effect of Capital Punishment: Evidence from a Judicial Experiment*, with Hashem Dezhbakhsh, 44 ECONOMIC INQUIRY 512 (2004).
- *Antitrust and Market Dominance*, with William G. Shepherd and George B. Shepherd, 46 THE ANTITRUST BULLETIN 835 (2002).

#### **CONGRESSIONAL TESTIMONY:**

- *Testimony on Crime and Deterrence: Hearing on H.R. 2934, The Terrorist Penalties Enhancement Act of 2003. Before the House Judiciary Committee; Subcommittee on Crime, Terrorism, and Homeland Security*, 108<sup>th</sup> Cong. (2004).

#### **EDUCATION:**

- Emory University, Atlanta, GA, Ph.D. in Economics; Fields of Specialization: Law & Economics & Econometrics/ Statistics (study at Emory School of Law), 2002. Woodruff Scholar.
- Baylor University, Waco, TX, BBA in Economics and International Business, 1997 (GPA: 4.0; Summa Cum Laude)

#### **TEACHING EXPERIENCE:**

- Torts; Law and Economics; Analytical Methods for Lawyers; Statistics for Lawyers; Economics and Public Policy; Econometrics; Statistics; Accounting for Lawyers, Finance for Lawyers, Advanced Microeconomics; Introduction to Microeconomics

## UNIVERSITY SERVICE:

- Chair of Faculty Admissions Committee (2012-present)
- Chair of Colloquium and Scholarship Committee (2011-2012)
- Admissions Committee (2009-present)
- University-Wide Liberal Arts Committee (2011-present)
- Woodruff Scholar Selection Committee (2010-present)
- Appointments Committee (2010-2011)
- Curriculum Committee (2007-2010)
- Colloquium and Scholarship Committee (2006-2007)
- Academic Standings Committee (2005-2006)

## SELECTED SCHOLARLY PRESENTATIONS:

### **University Presentations**

- University of Chicago Law School, Conference on Judicial Behavior (2013)  
*Panel Effects in State Courts*
- Korea Economic Research Institute (2013)  
*Overcriminalization in U.S. Corporate Law*
- University of Texas School of Law, Center for Law, Business, and Economics (2012)  
*The Partisan Foundations of Judicial Campaign Finance*
- ETH Zurich, the University of Zurich, the University of St. Gallen and the University of Lucerne (Joint workshop), Workshop & Lecture Series in Law & Economics, Zurich, Switzerland (2012)  
*Products Liability and Economic Activity*  
*Partisan Differences: How and Why Democratic and Republican Judges Differ in Party Loyalty*
- George Mason School of Law, Law & Economics Colloquium (2012)  
*Products Liability and Economic Activity*
- University of Chicago Law School, Law & Economics Faculty Workshop (2011)  
*Products Liability and Economic Activity*
- University of Texas School of Law, Center for Law, Business, and Economics (2011)  
*Products Liability and Economic Activity*
- Northwestern University School of Law, Searle Center Policy Roundtable (2010)  
*Offer-of-Judgment Rules and Civil Litigation*
- Economics Institute of the Academy of Sciences of the Czech Republic and Charles University Dept. of Economics, Prague (2010)  
*The Partisan Price of Justice*
- University of Illinois College of Law, Conference to Honor Tom Ulen (2010)  
*Measuring Maximizing Judges*
- George Mason Robert A. Levy Fellows Workshop in Law & Liberty (2010)  
*The Partisan Price of Justice*
- University of Chicago Law School, Law & Economics Faculty Workshop (2009)  
*The Business of Judicial Elections*
- Northwestern University School of Law, Law & Political Economy Colloquium (2009)  
*The Business of Judicial Elections*
- Georgetown University Law School, Law & Economics Faculty Workshop (2009)  
*The Business of Judicial Elections*
- Northwestern University School of Law, Judicial Behavior Workshop (2009)  
*Are Appointed Judges Strategic Too?*
- Duke Law School, Workshop on Judicial Behavior (2009)  
*Are Appointed Judges Strategic Too?*
- University of Southern California School of Law, CLEO Faculty Workshop (2007)  
*The Influence of Retention Politics on Judges' Decisions*
- University of North Carolina School of Law, Faculty Colloquium (2007)  
*The Influence of Retention Politics on Judges' Decisions*
- NYU School of Law, Comparative Law & Economics Forum (2007)  
*The Influence of Retention Politics on Judges' Decisions*
- University of Michigan School of Law, Law & Econ Colloquium (2007)  
*The Demographics of Tort Reform*
- Northwestern University School of Law, Law & Econ Colloquium (2006)  
*The Demographics of Tort Reform*

- Florida State University School of Law, Law & Econ Colloquium (2006)  
*Cross-Monitoring and Corporate Governance*
- Stanford Law School, Law & Econ Colloquium (2006)  
*Tort Reform and Accidental Deaths*
- Univ. of Illinois College of Law, Comparative Law & Economics Forum (2005)  
*Tort Reform and Accidental Deaths*
- George Mason University, Law & Econ Colloquium (2005)  
*Tort Reform and Accidental Deaths*
- University of Georgia, Law & Econ Colloquium (2005)  
*Deterrence versus Brutalization: Capital Punishment's Differing Impacts Among States*
- University of Alabama, Department of Economics Faculty Colloquium (2004)  
*Diversity, Segregation, and Crime: An Industrial Organization Analysis of Competition*
- University of Toronto School of Law, Law & Economics Colloquium (2004)  
*Deterrence versus Brutalization: Capital Punishment's Differing Impacts Among States*
- Georgetown University Law School, Olin Law & Economics Workshop (2004)  
*Capital Punishment and Deterrence: Evidence from a Judicial Experiment*
- Georgia Tech University, Department of Economics Faculty Colloquium (2001)  
*Police, Prosecutors, Criminals, and Determinate Sentencing*

### **Conferences and Meetings**

- Korean Law and Economics Association, Seoul, Korea (2013)  
*Panel Effects on State Courts*
- American Law & Economics Association Annual Meetings, Nashville, TN (2013)  
*The Partisan Foundations of Judicial Campaign Finance*
- Canadian Law & Economics Association Annual Meetings, Toronto, CA (2012)  
*The Partisan Foundations of Judicial Campaign Finance*
- American Law & Economics Association Annual Meetings, Palo Alto, CA (2012)  
*Products Liability and Economic Activity*
- American Law & Economics Association Annual Meetings, New York, NY (2011)  
*The Partisan Price of Justice*
- Mason Judicial Education Program 6th Annual Judicial Symposium on Civil Justice Issues, Fairfax, VA (2011)  
*Ideal versus Reality in Third-Party Litigation Financing*
- Global Conference on Third-Party Financing of Litigation hosted by the Searle Civil Justice Institute, Brussels, Belgium (2011)  
*Ideal versus Reality in Third-Party Litigation Financing*
- Global Conference on Third-Party Financing of Litigation hosted by the Searle Civil Justice Institute, New York, NY (2011)  
*Ideal versus Reality in Third-Party Litigation Financing*
- Southeastern Association of Law Schools Annual Meetings, Hilton Head, SC (2011)  
*Teaching Empirical Methods to Law Students*
- American Law & Economics Association Annual Meetings, Princeton, NJ (2010)  
*The Business of Judicial Elections*
- American Law & Economics Association Annual Meetings, San Diego, CA (2009)  
*Are Appointed Judges Strategic Too?*
- Conference on New Institutional Economics, Max Planck Institute, Germany (2009)  
*Judicial Opposition as Politics*
- Conference on Empirical Legal Studies, New York, NY (2007)  
*Tort Reform's Unintended Consequences*
- American Law & Economics Association Annual Meetings, Boston, MA (2007)  
*The Demographics of Tort Reform*
- European Association of Law and Economics Annual Conference, Madrid (2007)  
*The Demographics of Tort Reform*
- Law and Society Association Annual Meetings, Baltimore, MD (2006)  
*Cross-Monitoring and Corporate Governance*
- Canadian Law and Economics Association Annual Meetings, Toronto, CA (2006)  
*Cross-Monitoring and Corporate Governance*
- American Law & Economics Assoc. Annual Meetings, New York, NY (2005)  
*Blakely's Silver Lining: Sentencing Guidelines, Judicial Discretion, and Crime*
- American Economics Association Annual Meetings, Washington, D.C. (2005)  
*Blakely's Silver Lining: Sentencing Guidelines, Judicial Discretion, and Crime*



- National Academy of Sciences, National Research Council Semi-Annual Meeting, Washington, D.C. (2004)  
*Capital Punishment and Deterrence*
- American Law & Economics Assoc. Annual Meetings, New York, NY (2005)  
*Deterrence versus Brutalization: Capital Punishment's Differing Impacts Among States*
- American Law & Economics Assoc. Annual Meetings, Chicago, IL (2004)  
*Capital Punishment and Deterrence*
- American Law & Economics Assoc. Annual Meetings, Toronto, CA (2003)  
*Major League Baseball, Market Regulations, and the Export of Employment*
- American Law & Economics Assoc. Annual Meetings, Washington, D.C. (2001)  
*The Deterrent Effect of California's Two- and Three-Strikes Legislation*

## **OTHER PROFESSIONAL ACTIVITIES:**

- Associate Editor of the INTERNATIONAL REVIEW OF LAW & ECONOMICS (2011- present)
- Peer-Reviewer (Referee) for: JOURNAL OF LEGAL STUDIES, JOURNAL OF LAW, ECONOMICS AND ORGANIZATION, AMERICAN POLITICAL SCIENCE REVIEW, PUBLIC CHOICE, JOURNAL OF EMPIRICAL LEGAL STUDIES, JOURNAL OF HEALTH ECONOMICS, REVIEW OF LAW & ECONOMICS, INTERNATIONAL REVIEW OF LAW & ECONOMICS, SUPREME COURT ECONOMIC REVIEW, ECONOMICA, JOURNAL OF INDUSTRIAL ORGANIZATION, MANAGERIAL & DECISION ECONOMICS, CONTEMPORARY ECONOMIC POLICY, PUBLIC FINANCE REVIEW.
- Statistical Expert in the Areas of Damage Computation, Employment Law, Healthcare Law, and Competition Policy
- Other Professional Recognition for my research includes:
  - Television interviews on CNN Sunday; National Fox News; The O'Reilly Factor on the National Fox News Network; and CBS, ABC, and FOX local affiliates.
  - Op-Eds in *The Wall Street Journal*, *The New York Times*, and *The Christian Science Monitor*.
  - Print interviews include the *The New York Times*, *Chronicle of Higher Education*, *The Atlanta Business Chronicle*, *The Washington Post*.
  - Radio interviews include ReachMD, BBC: Five Alive; WJR in Detroit, MI; KRLD in Arlington, TX; WLW in Cincinnati, OH; KTSA in San Antonio, TX; CHED in Edmonton, Canada; WRVA in Richmond, VA; CJME in Saskatoon, Canada; NTR in Saskatoon, Canada; WMVZ in Detroit, MI; KXNT in Las Vegas, NV; and KRLA in Los Angeles, CA.
  - Research also cited in the National Center for Policy Analysis: Executive Alert; The Weekly Standard; and The National Journal.
  - Research also requested for use by the Senate Judiciary Committee; U.S. Naval Academy; House of Representatives (Rep. Bob Goodlatt); Attorney General of Alabama; New York State Assembly (Stephen Kaufman); and the Chief of Criminal Appeals Division of Chicago (Renee Goldfarb).





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